

Long term impact of a Cash-Transfers Program on Labor Outcomes of the Rural Youth

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Abstract

This paper evaluates if, after ten years of implementation, the renowned conditional cash transfer program “Oportunidades” has had an effect on labor market outcomes among young beneficiaries in rural Mexico. We use the 2007 panel wave of the Rural Households Evaluation Survey and apply a multi-treatment methodology for different time exposition to the program to identify effects on employment probability, wages, migration and intergenerational occupational mobility. Our results show very little evidence of program impacts on employment, wages or inter-generational occupational mobility among the cohort of beneficiaries under study. This suggests that, despite well documented effects on human capital accumulation of the beneficiaries, labor market prospects in the localities under the program remain sparse.

Keywords: impact evaluation, intergenerational mobility, poverty, labor market

JEL: C21, D63, J24, J62, R23

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1. Introduction

The social development program “Oportunidades” has been in operation in rural Mexico since 1997, granting cash transfers to households in extreme poverty conditional on families keeping children in school, making adults go health clinics, and providing nutritional supplements to pregnant women and children under three. The main objective of the program is to break the intergeneration transmission of poverty in the understanding that better nutrition, health and educational levels would lead to improving labor productivity of the beneficiaries so they get better job opportunities and hence an improved household welfare. Even though the program does not have among its explicit objectives better employment or wages, it is difficult to think in breaking the intergenerational poverty cycle without considering how the young perform at the labor market after being exposed to the program, compared both to their parents and to non-beneficiary youths.

The objective of this paper is twofold. First, we explore to what extent time exposition to benefits affects labor outcomes of the young such as probability of being employed and labor earnings when employed. Second, we also seek to determine if there is an improvement in occupational position compared to their parents and if that improvement is due to the program benefits in the short, medium or long term. Despite “Oportunidades” being one of the most evaluated programs in the region, this is the first impact evaluation that studies the effect of the program on labor market outcomes and one of the few that studies its long-term impacts.²

Very few studies have focused on the long term effects of social programs in Latin America. This is mainly due to dearth of data that allows for examining the performance of beneficiaries a long time after exposure to the program. The main exception to this may be the study by Maluccio et al, 2006, which makes use of a unique database that

² “Oportunidades” is one of the most studied conditional cash transfer programs in the academic literature. Some important references are Skoufias, Parker et al (2001), Coady and Parker (2004), Gertler (2004), Behrman, Sengupta and Todd (2005), Gertler, Martinez and Rubio-Codina (2006), Fernald, Gertler and Neufeld (2008). All of these studies took advantage of the experimental design and availability of panel data that characterizes the program, but were confined to short term effects. After 10 years of operation of the program, the first long-term studies have started to appear: Fernald, Gertler and Neufeld (2009) on nutritional outcomes, and Behrman, Parker and Todd (2010) on educational outcomes.

identifies beneficiaries of a Guatemalan social program 25 years after exposure. If we concentrate on long-term impact of programs on labor market performance, however, then we have to rely on studies outside the region about the effect of job-training programs (for instance, Lechner, Miquel and Wunsch, 2004; and Hotz, Imbens and Klerman, 2006). Another way of looking at long term effects is focusing on intergenerational mobility of income or occupations, or even other health/cognition variables. In this case the literature is more abundant inside and outside the region (see, just to mention a few, Behrman et al, 2005; Andrade et al 2003; and Blanden et al, 2004, 2006; Ferreira and Veloso, 2006), and for Mexico in particular (Valero and Tijerina; 2002; Meyer et al. 2008). However, the studies refer to mobility in general, and no direct link between the performance of a program and mobility is attempted.

We make use of a database for 14-24 year-olds in beneficiary localities included in the new panel wave of the Rural Households Evaluation Survey 2007 (ENCEL). This dataset allows us to study the impact of the program on beneficiaries after, at most, nine years of exposure (e.g., a beneficiary who was between 6 and 15 year of age in 1998, when “Oportunidades”, then named “Progresa”, started). This database has a new questionnaire for the young about labor activities as well as a set of questions for the parent’s former labor activities at similar age (when the beneficiary was 15 years old).

We make use of a regression methodology controlling for different treatment duration and with pre-program characteristics at the household and local level. We calculate the impact for the short (less than 3 years), medium (3-6 years) and long (more than 6 years) exposure to the program on the probability of employment and on wage levels if employed as well as on the intergenerational occupational mobility of young beneficiaries compared to their parents.

This paper is structured as follows. Next section introduces the relevant literature review about long term impact of social programs and studies on labor intergenerational mobility between parents and sons. After that, we present the data and models to apply, results and finally conclusions are drawn.

2. Literature Review

This study has two important elements: on the one hand it tries to measure the possible effect from receiving benefits in the long term on labor outcomes; and on the other hand to measure if that labor outcome is significantly better than that of the parents. Few studies have focused on both. The academic literature on the long term impact of social programs on employment or on mobility, however, is not very abundant.

One study on the long term impact of a training program on labor indicators comes from Germany, where Lechner, Miquels and Wurst (2004) evaluated training program for the unemployed on labor reinsertion of beneficiaries after seven years. These authors find that some specific sub programs have an incidence of about 10% increase in the employment rate for beneficiaries, although it declines with time. Fitzenberger and Volter (2007) also studied for Germany the long term impact of beneficiaries of a training public program for workers of the former Democratic Germany so they fit their capabilities to the new labor requirements after unification. They find a positive effect from out of work training, but only a short term effect from practice in the firm training, compared to those not undertaking any training.

In the case of the California program GAIN, Hotz, Imbens and Klerman (2000, 2006) make use of the initial randomization of individuals subject to the benefits focused on providing with abilities to unemployed in the short, medium and long term. They find that providing with abilities provision for the labor market has a short tem effect, while provision of human capital has effect on the long run (7-9 years) on variables such as annual employment, quarters with job and wages.

More recently, Maluccio et al (2006) make use of an exceptional dataset that allows for identification of beneficiaries after 25 years from receiving the program. These authors identify positive effects from intervention of nutritional supplements for Guatemalan children between cero and 36 months of age, on completing primary and secondary education, as well on reading comprehension after 25 years. Such research confirms the importance and effectiveness in the long run of programs that improve nutrition of poor households.

As for intergenerational analysis, intergenerational transmission can be understood as transmission of individual abilities, characteristics, behavior and outcomes from parents to children (Lochner, 2008). A strong correlation between parents' income and that of the children suggests lower mobility, meaning that those born with poor parents have lower probability to achieve their income possibilities, thus social mobility is low.

Intergenerational transmission is based mainly on Becker and Tomes (1979, 1986) who pose that two mechanisms are possible: the first is through endowments inheritance, and the second is through the propensity of parents to invest in their children human capital. In addition, family background characteristics during childhood and adolescence such as family structure, number of children, etc. may also affect mobility. Solon (2004) introduced modifications to the previous models to take into account the role of public education in such mobility. In that case, the increase in returns to human capital together with public spending may increase mobility, if spending is focalized on developing poor children human capital.

However, a series of studies in different countries on this topic have pointed that most of the part of mobility is not explained. Bladen et al (2004) find to the UK that there is a limited mobility between generations when compared with other countries. They also find more education plays an important role in stretching relations between incomes. Bladen et al (2006) find that education achievements and better opportunities for poor children increase mobility, suggesting that targeting in non cognitive issues, such as self-esteem and application can induce even better results for mobility.

In other studies, Piraino (2006) shows for Italy that there is lower mobility compared to the US and the UK, produced by heavy labor regulation for entering the market and also for occupational mobility. In Canada, according to Fortin and Lefevbre (1998), there is higher mobility than in the US and the UK, and is also higher for younger cohorts, but lower for women groups. Bladen (2005) also finds higher mobility between generations in Canada and Germany than in the US and the UK, where returns to education differences tend to persist.

In Latin America, Andrade et al (2003) analyzed intergenerational mobility through income in Brazil and found that it is lower than in developed countries, mainly due to

restrictions in access to credit markets. Ferreira and Veloso (2006) find something similar using wage data. Behrman et al (2001) compared mobility through occupations and education in several Latin American countries, finding coefficients of intergenerational mobility of 0.3 for Brazil, and Colombia, 0.5 for Mexico, and 0.65 for the US, meaning that Latin American countries have lower mobility than the US.³

3. Data

The main source of data for this study is the special module for the young in the Rural Households Evaluation Survey (ENCEL) 2007. This module includes a new questionnaire for individuals aged 14 to 24 in localities visited to survey the ENCEL in 2007. The sample includes households surveyed in previous waves of the ENCEL (1998, 2000, and 2003) as well as a new sample on localities in other states.⁴

Insert Table 1

In this module, the young are asked about several topics using a set of questions similar to those in the National Employment Surveys (ENOE). In this way the ENCEL 2007 gets information about employment, occupation, labor income, etc. Table 1 shows a comparison of ENCEL and ENOE samples for the same states and age groups in rural areas. The ENCEL survey records a labor force share that is nine points lower than ENOE's, although the unemployment rates are similar. Availability for work is almost nil in the ENCEL. When comparing the characteristics of those employed (see Table 2), the ENCEL have a lower share of salaried workers than ENOE (59.7 percent vs 66.9 percent, respectively), of workers with access to health services (4.6 percent and 11.9 percent) and a larger share of workers with less than 35 hours of work per week (8,4 percent and 4.4 percent). This first comparison indicates that the youth in localities

³ These coefficients are calculated from a regression where the dependant variable is income or occupation of the offspring and the main independent is he income or occupation of the parent, and the coefficient is the intergenerational elasticity, where 1 is perfect mobility and zero no mobility at all. The mentioned coefficients are standardized by 1-coefficient, interpreted as the mobility of the offspring respect to their parents.

⁴ This expansion of the sample aims at having information for a wider geographical area, given the expansion of the program in recent years. A problem of the sample in new states is that the information collected is not as complete as with previous waves of ENCEL. For instance, information from these new households does not include their eligibility index for the program nor some other background information.

where *Oportunidades* operates seem to have a reduced labor market attachment, with less hours of work, less likelihood of being salaried and less access to health services when compared to the average in rural areas for the same states.

Insert Table 2

We next proceed to describe the characteristics by type of beneficiary within the localities where the program operates using the ENCEL alone.⁵ These localities can be classified according to the duration of the program. Table 3 shows that labor force participation is slightly higher (40.3 percent) in medium exposure localities (those with the program being in operation for three to six years) whereas unemployment rate is lowest (2.7 percent) in localities with short exposure localities (i.e., those with less than three year old program). If analyzing the characteristics of the employed (see Table 4), medium exposure localities also have the highest share of salaried workers (65.8 percent), the highest rate of workers with access to health insurance services (8.9 percent) and the lowest share of agricultural workers (33.0 percent), whereas localities with long exposure have the lowest share of salaried workers (58.2 percent), of workers with access to health insurance services (3.4 percent) and the largest share of agricultural workers (49.7 percent).

Insert Table 3

Finally, when comparing beneficiaries and non-beneficiaries from the ENCEL 2007 we find that the former have a larger labor force participation than the latter, although their unemployment rates are the same (see Table 5). On the other hand, beneficiaries have a lower share of salaried workers and of workers with access to health insurance than non-beneficiaries. Non-beneficiaries, on the other hand, have a lower incidence of agricultural employment (see Table 6).

Insert Table 4

⁵ ENOE does not allow identifying if individuals or households are beneficiaries of *Oportunidades* and its questionnaire is restricted to labor related issues.

This preliminary description of the data indicates that ENCEL, as compared to the ENOE sample, is a sample with a larger share of precarious jobs (non-salaried, with health insurance and in agricultural activities). This may be the consequence of ENCEL being surveyed in high marginality localities where the Oportunidades program operates, whereas ENOE is a sample representative of the whole rural sector, and may indicate that Oportunidades localities have less favorable labor markets than other localities.

Insert Table 5

When comparing ENCEL observations by duration of exposure to the program or by access to the program some differences emerge, but these non-conditional differences cannot serve as evidence of program impacts. The following section addresses this issue.

Insert Table 6

4. Empirical Strategy

A long-term impact evaluation may take two perspectives. On the one hand, it may compare treatment and control groups a long time after the former received the treatment. On the other hand, it may compare the long term versus the short term impact for the treatment group. In our case we adopt the first approach, mainly because by 2000 or 2003 (previous waves of the Oportunidades panel data that could be used for gauging its short term impact) most of our sample would be too young to be labor market participants. In addition, we define four comparison groups. The controls are those who are eligible for treatment but, for some reason, have not received the benefit.⁶ Among the treated, we distinguish three groups according to exposure to the treatment: less than three years of treatment, between three and six years of treatment and more

⁶ The successful expansion of Oportunidades made that by 2003 the ENCEL ran out of control observations. Hence, the 2003 wave included new observations as controls. Our study controls are observations that were included in the 2003 wave of ENCEL and by 2007, despite the continued expansion of the program, have not yet been included in it.

than six years. Duration of the treatment is defined by time since the program has been working in a given locality.⁷

In order to deal with the issue of endogeneity in both selection to treatment and duration of treatment, we use pre-treatment information as controls.⁸ Therefore we will make use of data that provide household and locality characteristics before receiving treatment. Consequently, from the original 2007 ENCEL dataset of youth aged 14-24 we keep those that provide a questionnaire fully answered and who are not part of the new geographic areas included in 2007 (because background information is not available among these). Table 7 shows that out of the original 30,942 individuals we only use 16,601 observations in our econometric tests. These are distributed into treatments and controls based on program eligibility and program duration in their locality.

Insert Table 7

Following the canonical impact evaluation literature (see Wooldridge, 2008), we aim for the average effect on the treated (ATET). Formally:

$$ATET = E[Y_{it}(1) - Y_{it}(0) | T_i = 1]$$

where $Y_{it}(1)$ represents the value under treatment of the variable of interest (e.g. employment, wages, etc.) for individual i in period t ; $Y_{it}(0)$ is the value without treatment and $T_i=1$ is an indicator of the i th person receiving treatment. Using a control regression approach for estimating ATET, the ideal model would be:

$$E[Y_{2007} | T, Z, X, M] = g \left(\alpha + \sum_{i=1}^3 \beta_i T_i + Z\gamma_z + X\delta_x + M\lambda_M + \sum_{i=1}^3 T_i Z\beta_{zi} + \sum_{i=1}^3 T_i X\beta_{xi} + \sum_{i=1}^3 T_i M\beta_{Mi} \right)$$

⁷ A dataset of administrative records specifying the treatment duration for each beneficiary was still under construction by the time this study was done. Hence, we assume that treatment duration of a beneficiary equals the duration of the program in his/her locality. We adopt this proxy because, usually, all eligible beneficiaries are included when the program enters a locality. However, some individuals reporting being beneficiaries could have been beneficiaries for less time than the locality.

⁸ Another source of selection bias may be due to migration. Only a subsample of the beneficiaries observed in 2003 are again surveyed in 2007. Migration out of Oportunidades localities is an important phenomenon that we address in section 5.1.

where: Y is the labor outcome of the young in 2007; T_i is a set of dummy variables with three different treatment durations (short, medium and long), Z is a vector of variables describing the individual, X is a set of variables describing the household and M are variables for the locality.⁹

The effect of the program, assuming $g()$ is a linear function, would be the following:

$$\frac{\partial E[Y_{2007}|\cdot]}{\partial T_i} = \beta_i + Z\beta_{zi} + X\beta_{xi} + M\beta_{Mi} \quad i = 1,2,3$$

from where hypotheses regarding the significance of the treatment, as well as different treatment effects among groups defined according to personal, household or locality characteristics can be tested.

However, as explained above, there is no information yet about actual duration of the benefits for each beneficiary. We use instead program duration in each locality as an indicator for household treatment duration.¹⁰ Thus, the model, maintaining the linearity assumption for ease of notation, is:

$$E[Y_{2007}|T, Z, X, M] = \alpha + \sum_{i=2}^3 \varphi_i L_i + Z\gamma_z + X\delta_x + M\lambda_M + \sum_{i=2}^3 \beta_i TL_i + \sum_{i=2}^3 TL_i Z\beta_{zi} + \varepsilon$$

where L_i is a binary with 1 if the household lives in a locality where the program arrived less than three years ago, between 3 and 6, or more then 6 years ($i=1,2,3$). The marginal effect of being treated is then:

$$\frac{\partial E[Y_{2007}|T, Z, X, M]}{\partial T} = \sum_{i=2}^3 \beta_i L_i + \sum_{i=2}^3 L_i Z\beta_{zi} + \sum_{i=2}^3 L_i X\beta_{xi} + \sum_{i=2}^3 L_i M\beta_{Mi}$$

⁹ In Annex 2 there is a description of all the control variables.

¹⁰ See footnote 7.

In order to calculate the impact on intergenerational mobility, we first build a transition matrix comparing the labor situation of the young and that of the household head at the age of 15. For illustration purposes, consider the following 2x2 matrix:

		Sons	
		E ₁	E ₂
Parents	E ₁	a	b
	E ₂	c	d

The parents are the initial situation while the sons are the final one. E_i denotes an employment category, where $i < j$ indicates a lower ranking employment category. The share of observations in cells on the diagonal denotes intergenerational persistence of outcomes from parents to offspring, while the share of observations off the diagonal represents upward, or downward, mobility. More specifically, the share in cell b would be the upward mobility indicator, which is positive mobility, while the share in cell c indicates negative or downward mobility.¹¹

These transition matrixes show the uncontrolled means for intergenerational occupational mobility. In order to identify the impact of the treatment on occupational mobility (i.e., controlled mean effect) we make use again of a control regression model. We set a category for each cell of the matrix: upward mobility for those observations above the diagonal; no mobility for those on the diagonal and downward mobility for those below the diagonal. We then use an ordered probit model, where the dependent variable is the ordered ranking previously mentioned. The explanatory variables included in this model are the same than in equation with some additional parents' characteristics.

5. Results

5.1. *Effects of treatment on migration*

¹¹ We build matrixes with eight employment categories. See Annex 3 for an explanation of each category.

A serious source of concern in this study is data attrition due to migration. Only 64 percent of the children in the 2003 wave of the ENCEL survey could be identified in the corresponding age cohort of the 2007 wave of the survey. Arguably, most of these missing data are individuals who migrated out of their original “Oportunidades” localities. Unfortunately, surveys did not follow those migrating, thus we cannot estimate how they perform in the labor markets after being exposed to the benefits of the program for some time. The results presented in the sections below will include, as we have mentioned, only those young that remain in the localities where they received benefits. This may introduce selective bias since those that have migrated may not be a random selection of the population, and also since they may be in another local economic environment it is possible that they may be performing differently than those surveyed by the ENCEL 2007.

In order to know the extent of the attrition and possible bias, we have taken the ENCEL round 2003 and identify those that have been interviewed in 2007. We use this information to run model presented where dependent variable is 1 if the young has not observed in the 2007 survey (assuming she migrated between 2003 and 2007). The explanatory variables are taken from the 2003 survey, including individual, household and localities characteristics. What we are calculating here is the probability that the program Oportunidades has affected the decision to migrate between 2003 and 2007. Table 8 presents the results.

Most of the results presented in Table 8 are not statistically significant, even after considering gender or indigenous condition. The only exception is for beneficiaries with primary education in 2003 in localities that were in the program since it started in 1997. In this case a significant negative effect is found. This indicates that beneficiaries with primary education were less likely to migrate. This may be the consequence of individuals continuing their education towards secondary, thanks in part to the program itself, and not deciding to migrate.

Insert Table 8

It has to be remarked that the decision to migrate may depend on covariates that are not possible to measure with the data in the ENCEL, leaving aside the unobservable

problem that may affect the analysis. In addition, other variables not presented in Table 8 and included in the model are significant, for example age and the education level alone were significant in explaining migration. That is, the higher the age and school level, the higher the probability to migrate from that locality, but the combination of education level and program treatment is not shown to be associated to migration. The program has no extra marginal effect on migration for those young individuals. If something, it has discouraged migration in the case of those with primary education in so-called long-term treatment localities.

5.2. Labor outcomes of the young

Here we compare the labor market performance of those young who are in a household that benefited from the program to those who being eligible did not receive the benefits. For labor outcomes we have two measures: first if the young is working and, second, if he/she is working, his/her labor income.

The probit estimates for the impact of treatment upon probability of being employed are in Table 9. From all those young in our sample that are not studying (10,166) only 5,579 are working. It can be noted that the effects of different treatment durations are mostly positive, although none is statistically significant. After separating the sample by gender of the beneficiary, the sign of the impacts changes a little but all coefficients remain not statistically significant. If, in addition, we control by education level or by indigenous condition we usually find that medium and long term treatments have a positive marginal effect but, again, no statistically significant effect is found.

Insert Table 9

What can be hinted from results in Table 9 is that once we control for other variables, there is no effect from different time exposure to the program on producing additional probability of being employed. Given the well documented impact of the program on increasing the education of beneficiaries (see, for instance, Skoufias and Parker, 2001), our results indicate that the program affects the probability of being employed only to the extent that increases the probability of being with more education. Being exposed to

Oportunidades, does not increase nor decrease the probability to get an employment beyond the effect that a given education level already has.

Table 10 shows the estimates for the impact of the program upon wages. In this case, we use a sample of 4123 individuals with reported income, 3,285 of whom have been beneficiaries and 838 were not. In this case, we find some statistically significant effect but the results vary by gender. There is a positive and significant effect from long term treatment on males with primary and secondary education, of 12.6 and 14.6 per cent respectively, compared to non beneficiaries with same education levels (the effect is non-significant among males with high school). For women and men in localities with medium term exposure, the results are negative and significant for all education levels. Assuming that labor market characteristics in different localities have been adequately controlled by other variables, these results indicate that favorable impacts, at every education level, are obtained only for males and after long term exposure to the program.

Insert Table 10

5.3. Intergenerational occupational mobility

As explained above, a first measure of intergenerational mobility can be done through a transition matrix. In this text we only present those corresponding to occupations. Other labor characteristics such as having an informal job could also be used here; however, the dynamics of jobs is very high in Mexico (around 30 per cent of workers change from formal to informal or vice versa in any given quarter). In addition, some authors argue whether a formal job is better or not than an informal job after taking into account preferences and other aspects.¹² Instead, we classify occupation in eight categories where category 1 requires lower abilities, while category eight, the higher, requires more abilities.¹³

¹² See for example Studies by Maloney (2004) and Rodriguez-Oreggia (2007) about transitions between formal and informal Jobs; as well as the argument by Levy (2007) on the context of Oportunidades and jobs.

¹³ In Annex 3 there a description of how the categories were built.

Table 11 shows the distribution of occupations for the young (in columns) and the occupation for parents (in rows). Each row includes the total number of observations per cell, and the percentage according to each row, allowing the identification of the young in each type of occupation according to the type of occupation of the parent. For example: in the case of parents in occupation1, the less skilled and mainly for agriculture tasks, we can note that 68.63 per cent of the young males, and a 28.88 per cent of women, have the same occupation than the parent, while the rest split between all other types of occupations, clustering specially in occupations 2 and 3, which are still among the less skilled.

Insert Table 11

From Table 11 we can calculate that a 59.1 per cent of young males and a 26.9 per cent of young female have the same type of occupation than the parent (summing up cells in the main diagonal). For each type of occupation the percentage of permanence has strong variations, from a 68.8 per cent in category 1, to almost zero in category 7 for males. Those observations under the main diagonal, i.e. negative mobility, are 14.5 per cent for males and 14.3 for females. Observations above the main diagonal, i.e. positive mobility, are 26.4 per cent for males and 58.8 for females. The higher upward mobility among females must be due to the fact that the parent under comparison is the head of the household who, most of the times, is the father. A gender-segregated allocation of occupations may explain why the percentage in activity 1 is much lower for girls than boys.

Insert Table 12

Table 12 and Table 13 show transition matrices for young males and females, separating between beneficiaries and non beneficiaries. We can now compare mobility rates for both groups. Male beneficiaries show an immobility rate of 60.4 per cent, i.e. they have the same type of occupation than parents, while non beneficiaries show a rate of 54.4 per cent. For women, the rates are 27 per cent for beneficiaries and 26 per cent for non beneficiaries. Male beneficiaries have downward mobility for about 13.7 per cent, and 17.3 per cent for non beneficiaries, while for females is of 13.2 per cent for beneficiaries and 17.6 per cent for non beneficiaries. Those moving for upward

occupations are 25.8 per cent for beneficiaries and 28.2 per cent for non beneficiaries in the case of males, and 59.5 per cent for beneficiaries and 56.3 per cent for non beneficiaries.

Insert Table 13

In the case of males, there is less upward mobility for beneficiaries than for non beneficiaries, the opposite occurring for females. However, this has to be read carefully as we are not controlling for other factors such as personal, household and local characteristics, and especially for the span of time the individuals have been receiving for the benefits of the program. Table 14 shows these results, measured as marginal changes. In the first panel there are the results of general exposition to the benefits for different times, while the second panel presents results differentiated for educational groups.

Insert Table 14

The general effect is increasing and positive in any specification. In fact, the magnitude seems to increase while controlling for more effects and control for identification. However, those impacts are not statistically significant, which means that we cannot suggest there is any upward/downward mobility effect derived from the benefits of the program compared to those who had not received the benefits.

The differential impact by educational levels is also positive and increasing as education and time exposition to benefits also increase. However, there is no statistical significance neither in this group of calculations. In addition, we have calculated same impact but differentiating for indigenous population, with positive results and larger magnitude, but also no statistically significant.

We have also calculated the effects separating the sample for females and males. Table 15 shows the results for males. In this case, general effects are positive for males, although not significant. Differencing for educative levels the effects are negative but also not significant. For indigenous population also there is a positive and larger effect but still not significant. Results for females are in Table 16. Although in general these

results are not significant, it is possible to note that it is significant for those women that had received benefits for a short term (less than three years). In this case, these women have between 34 and 38 per cent probability of moving to an upward occupation when compared similar women that have not received the benefits. Differential effects by educational level are also no significant. Additionally, it was not possible to get a larger sample for indigenous young, thus we could not calculate such effects for that group of women.

Insert Table 15

We have replicated the calculations for transitions between formal and informal jobs, and also for levels of labor income. We only get positive and significant results for males in short term benefits for moving to formal jobs compared to their parents. Results are available from the authors upon request.¹⁴

Insert Table 16

This results indicate that, with the exception of female beneficiaries under short term treatment (i.e., newer localities in Oportunidades), the program does not appear to have an impact on intergenerational mobility. This may be basically due to a local context of low dynamic for generating quality employments or opportunities. Also, there is a limitation in the sense that we only have a sample for households in rural poor localities covered by the program and thus generalization is limited. Moreover, as we only have in the sample those young not migration but remaining in such localities, findings are only applicable to them. It is feasible that intergenerational mobility operates only after the child migrates to another locality where employment opportunities are more varied than in her parents' locality. Without further data from these migrants these hypothesis cannot be tested in this study.

¹⁴ Labor income for the parent is asked to the young, introducing noise in such measurement, being more accurate to use, as we did here, the occupations. Regarding the formal-informal jobs, the evidence shows that for low income households mobility between formal and informal is higher (Rodriguez-Oreggia, 2007), and therefore having a formal jobs does not guarantee at all to have access to social security or pensions in a future.

6. Conclusions

Our results shows that, after ten years of implementation of the Oportunidades social development program in rural areas, very little evidence is found of its impact on employment, wages and inter-generational occupational mobility among the cohort of beneficiaries aged 14-24 in 2007. No significant effect is found regarding the probability of being employed, and only a positive effect in wages among males exposed at least six years to the program. These results indicate that, given our model specification, being exposed to Oportunidades does not increase nor decrease the probability to get an employment beyond the effect that a given education level has. In other words, the impact of the program operates only via the increase in the level of education of the beneficiary. No further impacts are identified. In the case of wages, there is some evidence that long-term male beneficiaries earn more than non-beneficiaries at every education level, but short and medium term beneficiaries show either no difference or even lower wages than non-beneficiaries.

Regarding occupational mobility, descriptive data shows that female beneficiaries show more upward mobility than non-beneficiaries, whereas male beneficiaries show the opposite trend. After controlling for other variables, most of the results lose statistical significance, although positive impacts remain statistically significant for women that have received short-term treatment to the program. These are the only ones that show evidence of higher likelihood to experience upward occupational mobility.

Despite its importance, these limited results should be taken as preliminary and only indicative due to the limitations of the study. First among these limitations is the fact that the sample consists only of those young workers that have not migrated and remain in the poor rural localities where the program operates. Since the program is not designed to produce a direct impact on local demand for labor or on productive activities that may generate local growth or jobs, finding no impact on employment or wages may suggest that despite the youth having more education, labor markets opportunities in these marginal localities are still very limited for them. To what extent the young that migrated to other areas are better off due to the program is something to analyze in future research with a survey designed for that purpose and following those beneficiaries who migrated.

Another important limitation is the use of duration of the program in a given locality as a proxy for treatment duration of the beneficiary. Although it can be argued that this is a good proxy, the actual characteristics of implementation of the program in the field may render some differences between the duration of the program in a given locality and the treatment duration of a given individual. Administrative records with these data will allow for a more parsimonious specification of the models and hopefully less prone to bias results. These data is soon to be available and will be used in future research.

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Table 1: Labor force participation from ENCEL and ENOE samples

	ENCEL 2007		ENOE 2007 *	
Total Observations	30942		7493	
Labor Force	11265	36.4%	3411	45.5%
Employed	10877	96.6%	3306	96.9%
Unemployed	388	3.4%	105	3.1%
Out of Labor Force	19677	63.6%	4082	54.5%
available	128	0.7%	806	19.7%
non-available	19549	99.3%	3276	80.3%

Source: Authors' calculations using ENOE and ENCEL.

Note: (*) corresponds to observations for individuals aged 12-24 in the same states surveyed by ENCEL(2007)

Table 2: Distribution of employed worker characteristics from ENCEL and ENOE samples

	ENCEL 2007		ENOE 2007 *	
Total Employed	10877		3306	
By function				
salaried	6488	59.6%	2211	66.9%
employers	162	1.5%	11	0.3%
self-employed	898	8.3%	205	6.2%
no-cash income	1734	15.9%	879	26.6%
non-specified	1595	14.7%	0	0.0%
By hours of work				
less than 15	196	1.8%	25	0.8%
15 to 34	718	6.6%	118	3.6%
35 to 48	549	5.0%	78	2.4%
more than 48	9121	83.9%	2936	88.8%
non-specified	47	0.4%	81	2.5%
no response	246	2.3%	68	2.1%
By access to health services				
with access	499	4.6%	393	11.9%
no access	10378	95.4%	2913	88.1%

Source: Authors' calculations using ENOE and ENCEL.

Note: (*) corresponds to observations for individuals aged 12-24 in the same states surveyed by ENCEL

Table 3: Labor force participation by Program duration from ENCEL sample

	long exposure		medium exposure		short exposure	
Total Observations	24296		4062		2356	
Labor Force	8743	36.0%	1638	40.3%	813	34.5%
Employed	8449	96.6%	1570	95.8%	791	97.3%
Unemployed	294	3.4%	68	4.2%	22	2.7%
Out of Labor Force	15553	64.0%	2424	59.7%	1543	65.5%
available	96	0.6%	22	0.9%	10	0.6%
non-available	15457	99.4%	2402	99.1%	1533	99.4%

Source: Authors' calculations using ENCEL 2007.

Note: long exposure corresponds to individuals living in localities where Oportunidades has been operating for six years or more; medium exposure for 3 to six years and short exposure for up to three years.

Table 4: Distribution of employed worker characteristics by program exposure

	long exposure		medium exposure		short exposure	
Total Employed	8449		1570		791	
By function						
salaried	4919	58.2%	1033	65.8%	500	63.2%
employers	121	1.4%	31	2.0%	10	1.3%
self-employed	709	8.4%	121	7.7%	60	7.6%
no-cash income	1406	16.6%	201	12.8%	116	14.7%
non-specified	1294	15.3%	184	11.7%	105	13.3%
By hours of work						
less than 15	167	2.0%	22	1.4%	6	0.8%
15 to 34	576	6.8%	92	5.9%	43	5.4%
35 to 48	442	5.2%	74	4.7%	30	3.8%
more than 48	7016	83.0%	1351	86.1%	699	88.4%
non-specified	5	0.1%	4	0.3%	37	4.7%
no response	243	2.9%	27	1.7%	0	0.0%
By access to health services						
with access	286	3.4%	139	8.9%	66	8.3%
no access	8163	96.6%	1431	91.1%	725	91.7%
By economic activity						
agriculture	4198	49.7%	518	33.0%	325	41.1%
non-agriculture (micro firms)	3510	41.5%	430	27.4%	278	35.1%
non-agriculture (others)	741	8.8%	622	39.6%	188	23.8%

Source: Authors' calculations using ENCEL 2007.

Note: long exposure corresponds to individuals living in localities where Oportunidades has been operating for six years or more; medium exposure for 3 to six years and short exposure for up to three years.

Table 5: Labor force participation by beneficiary from ENCEL

	Beneficiaries			Non-beneficiaries		
Total Observations	23090			7852		
Labor Force	8661	37.5%		2604	33.2%	
Employed	8365		96.6%	2512		96.5%
Unemployed	296		3.4%	92		3.5%
Out of Labor Force	14429	62.5%		5248	66.8%	
available	96		0.7%	32		0.6%
non-available	14333		99.3%	5216		99.4%

Source: Authors' calculations using ENCEL 2007.

Note:

Table 6: Distribution of employed worker characteristics by access to benefits

	Beneficiaries		Non-beneficiaries	
Total Employed	8365		2512	
By function				
salaried	4813	57.5%	1579	62.9%
employers	145	1.7%	48	1.9%
self-employed	805	9.6%	263	10.5%
no-cash income	1071	12.8%	242	9.6%
non-specified	1518	18.1%	379	15.1%
By hours of work				
less than 15	166	2.0%	30	1.2%
15 to 34	573	6.8%	145	5.8%
35 to 48	450	5.4%	99	3.9%
more than 48	6946	83.0%	2175	86.6%
non-specified	36	0.4%	11	0.4%
no response	194	2.3%	52	2.1%
By access to health services				
with access	319	3.8%	180	7.2%
no access	8046	96.2%	2332	92.8%
By economic activity				
agriculture	4058	48.5%	1022	40.7%
non-agriculture (micro firms)	3424	40.9%	827	32.9%
non-agriculture (others)	883	10.6%	663	26.4%

Source: Authors' calculations using ENCEL 2007.

Note:

Table 7: Selection of treatment and control groups from original sample

	Total			Non-beneficiaries	Beneficiaries
TOTAL SAMPLE IN ENCEL 2007	30,942			7,852	23,090
No locality information	228				
Locality information		30,714			
Incomplete questionnaire		3,352			
Complete questionnaire			27,362		
No eligibility index (new states)			8,514		
Non poor (non eligible)			2,247		
Poor (eligible)			16,601	2,994	13,607
Inactive			9,444	1,636	7,808
Active			7,157	1,358	5,799
Unemployed			281	61	220
Employed			6,876	1,297	5,579
Income not reported			2,154	366	1,788
Reported income			4,722	931	3,791

Table 8: Impact of the program on migration of young beneficiaries

Dependent variable: 1 if the young migrated between 2003 and 2007						
	All		Male		Female	
	MC	Z	MC	Z	MC	Z
<u>General effect</u>						
Short term: Less than 3 years	-0.142	-1.019	-0.171	-1.093	-0.296	-1.210
Medium term: 3-6 years	0.136	1.066	-	-	0.133	0.766
Long term: more than 6 years	0.099	0.965	0.034	0.227	0.094	0.683
<u>Differential effects by education level</u>						
<i>Primary</i>						
Short term	-0.059	-0.472	-0.092	-0.611	-0.066	-0.432
Medium term	-0.007	-0.201	-	-	-0.051	-1.111
Long term	-0.048	-1.446	-0.073	-1.773 *	-0.075	-1.844 **
<i>Secondary</i>						
Short term	-0.079	-0.526	-0.059	-0.309	-0.149	-0.749
Medium term	0.040	0.901	-	-	-0.033	-0.579
Long term	0.017	0.433	-0.013	-0.245	-0.017	-0.337
<i>High School</i>						
Short term	-0.116	-0.300	-0.216	-0.493	-0.182	-0.241
Medium term	0.140	1.084	-	-	0.152	0.869
Long term	0.126	1.208	0.031	0.201	0.144	1.030
<u>Differential effect for indigenous population</u>						
Short term	-0.042	-0.140	0.105	0.245	-0.173	-0.306
Medium term	0.010	0.030	-0.104	-0.256	0.191	0.335
Long term	0.088	0.407	0.004	0.015	0.114	0.416
N	38000		18687		19313	
Prob > F	0		0		0	
R ²	0.113		0.124		0.109	

Note: All regressions include characteristics of the individual and households in 2003, locality and pre-program 1997, and their interactions. Calculations are using a Probit model. Effects evaluated in the average of the sample using delta method standard errors. MC= marginal change. *=significance at the 10%, **=significance at 5%, ***=significance at 1%

Table 9: Impact from the benefits of program on probability of working

Dependent variable: 1 if the young is working						
	All		Male		Female	
	MC	Z	MC	Z	MC	Z
<u>General effect</u>						
Short term: Less than 3 years	-0.129	-1.183	0.042	0.339	-0.261	-1.215
Medium term: 3-6 years	0.074	0.236	-0.027	-0.076	0.227	0.439
Long term: more than 6 years	0.104	0.524	0.068	0.305	0.077	0.295
<u>Differential effects by education level</u>						
<i>Primary</i>						
Short term	-0.148	-0.816	-0.015	-0.055	-0.165	-0.913
Medium term	0.047	0.343	0.004	0.015	0.107	0.809
Long term	0.001	0.010	0.025	0.263	-0.038	-0.439
<i>Secondary</i>						
Short term	-0.119	-0.518	-0.070	-0.232	-0.062	-0.324
Medium term	0.075	0.630	-0.004	-0.022	0.165	1.146
Long term	0.062	0.688	0.064	0.581	0.021	0.222
<i>High School</i>						
Short term	-0.094	-0.334	0.020	0.054	-0.102	-0.295
Medium term	0.073	0.348	0.065	0.188	0.131	0.509
Long term	0.121	0.908	0.094	0.537	0.095	0.540
<u>Differential effect for indigenous population</u>						
Short term	-0.042	-0.140	0.105	0.245	-0.173	-0.306
Medium term	0.010	0.030	-0.104	-0.256	0.191	0.335
Long term	0.088	0.407	0.004	0.015	0.114	0.416
N	10166		5066		5100	
Prob > F	0		0		0	
R ²	0.207		0.06		0.075	

Note: All regressions include characteristics of the individual, household, pre-program 1997, and their interactions. Calculations refer to Probit estimates. Effects evaluated in the average of the sample using delta method standard errors. MC= marginal change. *=significance at the 10%, **=significance at 5%, ***=significance at 1%

Table 10: Impact from the benefits of the program on monthly labor earnings

Dependent variable: log of monthly labor income						
	All		Male		Female	
	MC	Z	MC	MC	Z	MC
<u>General effect</u>						
Short term: Less than 3 years	-0.284	-1.256	-0.164	-0.913	-0.527	-1.296
Medium: term 3-6 years	-0.325	-1.294	-0.104	-0.488	-0.710	-1.517
Long term: more than 6 years	-0.283	-1.782 **	-0.056	-0.339	-0.479	-1.567
<u>Differential effects by education level</u>						
<i>Primary</i>						
Short term	-0.001	-0.007	-0.081	-0.618	0.089	0.374
Medium term	-0.172	-2.600 ***	-0.166	-1.703 *	-0.221	-2.163 ***
Long term	0.112	1.750 *	0.126	1.982 **	-	-
<i>Secondary</i>						
Short term	-0.125	-0.818	-0.055	-0.392	-0.288	-1.347
Medium term	-0.096	-0.981	-0.001	-0.008	-0.272	-2.180 **
Long term	0.091	1.362	0.142	1.872 **	0.028	0.311
<i>High School</i>						
Short term	-0.300	-1.454	-0.447	-2.312 ***	0.082	0.313
Medium term	-0.605	-2.304 ***	-0.506	-1.836 **	-0.760	-2.469 ***
Long term	-0.047	-0.421	0.003	0.022	-0.110	-0.634
<u>Differential effect for indigenous population</u>						
Short term	-0.381	-1.694 *	-0.284	-1.543	-0.687	-1.751 *
Medium term	-0.154	-0.604	-0.015	-0.061	-0.376	-0.779
Long term	-0.326	-2.025 **	-0.233	-1.475	-0.265	-0.840
N	4123		2805		1318	
Prob > F	0		0		0	
R ²	0.101		0.085		0.129	

Notes: All regressions include characteristics of the individual, household, pre-program 1997, and their interactions. Calculations are using a log linear model. MC= marginal change. *=significance at the 10%, **=significance at 5%, *=significance at 1%

Table 11: Transition matrix for inter-generational occupational mobility

MALES										
		Occupation of the sons								Total
		1	2	3	4	5	6	7	8	
Occupation of the parents	1	3,179	393	528	85	381	19	17	30	4,632
		68.6%	8.5%	11.4%	1.8%	8.2%	0.4%	0.4%	0.7%	100%
	2	61	73	43	10	33	1	2	1	224
		27.2%	32.6%	19.2%	4.5%	14.7%	0.5%	0.9%	0.5%	100%
	3	168	90	363	20	91	1	5	6	744
		22.6%	12.1%	48.8%	2.7%	12.2%	0.1%	0.7%	0.8%	100%
	4	48	22	32	37	23	2	1	1	166
		28.9%	13.3%	19.3%	22.3%	13.9%	1.2%	0.6%	0.6%	100%
	5	163	172	106	22	161	5	4	0	633
		25.8%	27.2%	16.8%	3.5%	25.4%	0.8%	0.6%	0.0%	100%
	6	6	3	3	1	0	0	0	1	14
		42.9%	21.4%	21.4%	7.1%	0.0%	0.0%	0.0%	7.1%	100%
	7	2	2	4	0	2	1	0	0	11
		18.2%	18.2%	36.4%	0.0%	18.2%	9.1%	0.0%	0.0%	100%
	8	13	2	4	5	7	0	0	1	32
		40.6%	6.3%	12.5%	15.6%	21.9%	0.0%	0.0%	3.1%	100%
	Total	3,640	757	1,083	180	698	29	29	40	6,456
		56.4%	11.7%	16.8%	2.8%	10.8%	0.5%	0.5%	0.6%	100%
FEMALES										
		Occupation of the daughters								Total
		1	2	3	4	5	6	7	8	
Occupation of the parents	1	471	396	272	25	422	36	39	91	1,752
		26.9%	22.6%	15.5%	1.4%	24.1%	2.1%	2.2%	5.2%	100%
	2	30	43	32	6	30	0	4	1	146
		20.6%	29.5%	21.9%	4.1%	20.6%	0.0%	2.7%	0.7%	100%
	3	41	74	98	7	101	5	9	7	342
		12.0%	21.6%	28.7%	2.1%	29.5%	1.5%	2.6%	2.1%	100%
	4	4	11	10	4	27	1	4	3	64
		6.3%	17.2%	15.6%	6.3%	42.2%	1.6%	6.3%	4.7%	100%
	5	33	62	78	11	89	7	6	15	301
		11.0%	20.6%	25.9%	3.7%	29.6%	2.3%	2.0%	5.0%	100%
	6	0	1	2	0	3	1	1	0	8
		0.0%	12.5%	25.0%	0.0%	37.5%	12.5%	12.5%	0.0%	100%
	7	1	2	2	0	4	0	0	0	9
		11.1%	22.2%	22.2%	0.0%	44.4%	0.0%	0.0%	0.0%	100%
	8	2	0	3	0	5	0	0	4	14
		14.3%	0.0%	21.4%	0.0%	35.7%	0.0%	0.0%	28.6%	100%
	Total	582	589	497	53	681	50	63	121	2,636
		22.1%	22.3%	18.9%	2.0%	25.8%	1.9%	2.4%	4.6%	100%

Note: See Annex 3 for a detailed description of the type of occupations.

Table 12: Transition matrix for inter-generational occupation mobility by access to benefits (males)

Male Beneficiaries										
		Occupation of the sons							Total	
		1	2	3	4	5	6	7		8
Occupation of the parents	1	2,585	296	422	61	294	14	15	26	3,713
		69.6%	8.0%	11.4%	1.6%	7.9%	0.4%	0.4%	0.7%	100.0%
	2	45	57	32	10	23	1	1	0	169
		26.6%	33.7%	18.9%	5.9%	13.6%	0.6%	0.6%	0.0%	100.0%
	3	135	70	265	13	56	1	1	6	547
		24.7%	12.8%	48.5%	2.4%	10.2%	0.2%	0.2%	1.1%	100.0%
	4	36	13	23	21	18	0	1	0	112
		32.1%	11.6%	20.5%	18.8%	16.1%	0.0%	0.9%	0.0%	100.0%
	5	125	126	80	9	102	3	2	0	447
		28.0%	28.2%	17.9%	2.0%	22.8%	0.7%	0.5%	0.0%	100.0%
	6	6	2	2	1	0	0	0	1	12
		50.0%	16.7%	16.7%	8.3%	0.0%	0.0%	0.0%	8.3%	100.0%
	7	2	2	0	0	1	1	0	0	6
		33.3%	33.3%	0.0%	0.0%	16.7%	16.7%	0.0%	0.0%	100.0%
	8	7	0	1	1	1	0	0	1	11
		63.6%	0.0%	9.1%	9.1%	9.1%	0.0%	0.0%	9.1%	100.0%
Total	2,941	566	825	116	495	20	20	34	5,017	
	58.6%	11.3%	16.4%	2.3%	9.9%	0.4%	0.4%	0.7%	100.0%	
Male Non Beneficiaries										
		Occupation of the sons							Total	
		1	2	3	4	5	6	7		8
Occupation of the parents	1	594	97	106	24	87	5	2	4	919
		64.6%	10.6%	11.5%	2.6%	9.5%	0.5%	0.2%	0.4%	100.0%
	2	16	16	11	0	10	0	1	1	55
		29.1%	29.1%	20.0%	0.0%	18.2%	0.0%	1.8%	1.8%	100.0%
	3	33	20	98	7	35	0	4	0	197
		16.8%	10.2%	49.8%	3.6%	17.8%	0.0%	2.0%	0.0%	100.0%
	4	12	9	9	16	5	2	0	1	54
		22.2%	16.7%	16.7%	29.6%	9.3%	3.7%	0.0%	1.9%	100.0%
	5	38	46	26	13	59	2	2	0	186
		20.4%	24.7%	14.0%	7.0%	31.7%	1.1%	1.1%	0.0%	100.0%
	6	0	1	1	0	0	0	0	0	2
		0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	7	0	0	4	0	1	0	0	0	5
		0.0%	0.0%	80.0%	0.0%	20.0%	0.0%	0.0%	0.0%	100.0%
	8	6	2	3	4	6	0	0	0	21
		28.6%	9.5%	14.3%	19.1%	28.6%	0.0%	0.0%	0.0%	100.0%
Total	699	191	258	64	203	9	9	6	1,439	
	48.6%	13.3%	17.9%	4.5%	14.1%	0.6%	0.6%	0.4%	100.0%	

Note: See Annex 3 for a detailed description of the type of occupations.

Table 13: Transition matrix for inter-generational occupation mobility by access to benefits (females)

Females Beneficiaries										
		Type of occupation of the daughters								Total
		1	2	3	4	5	6	7	8	
Occupation of the parents	1	377	316	207	15	322	29	30	71	1,367
		27.6%	23.1%	15.1%	1.1%	23.6%	2.1%	2.2%	5.2%	100.0%
	2	25	37	22	6	20	0	3	1	114
		21.9%	32.5%	19.3%	5.3%	17.5%	0.0%	2.6%	0.9%	100.0%
	3	31	44	63	5	63	5	5	7	223
		13.9%	19.7%	28.3%	2.2%	28.3%	2.2%	2.2%	3.1%	100.0%
	4	1	9	6	2	15	1	4	2	40
		2.5%	22.5%	15.0%	5.0%	37.5%	2.5%	10.0%	5.0%	100.0%
	5	26	44	50	6	54	5	2	13	200
		13.0%	22.0%	25.0%	3.0%	27.0%	2.5%	1.0%	6.5%	100.0%
	6	0	1	2	0	3	1	0	0	7
		0.0%	14.3%	28.6%	0.0%	42.9%	14.3%	0.0%	0.0%	100.0%
	7	0	1	1	0	4	0	0	0	6
		0.0%	16.7%	16.7%	0.0%	66.7%	0.0%	0.0%	0.0%	100.0%
	8	2	0	2	0	3	0	0	1	8
		25.0%	0.0%	25.0%	0.0%	37.5%	0.0%	0.0%	12.5%	100.0%
	Total	462	452	353	34	484	41	44	95	1,965
		23.5%	23.0%	18.0%	1.7%	24.6%	2.1%	2.2%	4.8%	100.0%
Females Non Beneficiaries										
		Type of occupation of the daughters								Total
		1	2	3	4	5	6	7	8	
Occupation of the parents	1	94	80	65	10	100	7	9	20	385
		24.4%	20.8%	16.9%	2.6%	26.0%	1.8%	2.3%	5.2%	100.0%
	2	5	6	10	0	10	0	1	0	32
		15.6%	18.8%	31.3%	0.0%	31.3%	0.0%	3.1%	0.0%	100.0%
	3	10	30	35	2	38	0	4	0	119
		8.4%	25.2%	29.4%	1.7%	31.9%	0.0%	3.4%	0.0%	100.0%
	4	3	2	4	2	12	0	0	1	24
		12.5%	8.3%	16.7%	8.3%	50.0%	0.0%	0.0%	4.2%	100.0%
	5	7	18	28	5	35	2	4	2	101
		6.9%	17.8%	27.7%	5.0%	34.7%	2.0%	4.0%	2.0%	100.0%
	6	0	0	0	0	0	0	1	0	1
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	7	1	1	1	0	0	0	0	0	3
		33.3%	33.3%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	8	0	0	1	0	2	0	0	3	6
		0.0%	0.0%	16.7%	0.0%	33.3%	0.0%	0.0%	50.0%	100.0%
	Total	120	137	144	19	197	9	19	26	671
		17.9%	20.4%	21.5%	2.8%	29.4%	1.3%	2.8%	3.9%	100.0%

Note: See Annex 3 for a detailed description of the type of occupations.

Table 14: Impact from the benefits of the program on moving to a more qualified occupation

Dependent Variable: Moving to a more qualified occupation (All)								
	1		2		3		4	
	MC	Z	MC	Z	MC	Z	MC	Z
<u>General effect</u>								
Short term: Less than 3 years	0.06	1.05	0.06	1.00	0.11	0.85	0.08	0.57
Medium term: 3-6 years	0.04	0.15	0.04	0.12	0.13	0.19	0.13	0.18
Long term: more than 6 years	0.04	0.15	0.04	0.11	0.27	0.41	0.26	0.40
<u>Differential effects by education level</u>								
<i>Primary</i>								
Short term	-	-	-	-	0.00	0.01	-0.01	-0.01
Medium term	-	-	-	-	0.02	0.04	0.02	0.03
Long term	-	-	-	-	0.12	0.29	0.12	0.28
<i>Secondary</i>								
Short term	-	-	-	-	0.13	0.18	0.10	0.14
Medium term	-	-	-	-	0.12	0.20	0.12	0.19
Long term	-	-	-	-	0.15	0.34	0.15	0.32
<i>High School</i>								
Short term	-	-	-	-	-	-	-	-
Medium term	-	-	-	-	-	-	-	-
Long term	-	-	-	-	-	-	-	-
<u>Differential effect for indigenous population</u>								
Short term	-	-	-	-	0.26	0.36	0.22	0.30
Medium term	-	-	-	-	0.21	0.34	0.20	0.31
Long term	-	-	-	-	0.33	0.85	0.31	0.76
<u>Control Variables</u>								
Locality Entrance to the program	Yes		Yes		Yes		Yes	
Individual characteristics	Yes		No		Yes		Yes	
Household characteristics	No		Yes		Yes		Yes	
Locality characteristics	No		Yes		Yes		Yes	
Pre-program characteristics 1997	No		No		No		Yes	
N	3584		3584		3584		3584	
Prob > F	0		0		0		0	
R ²	0.045		0.049		0.053		0.058	

Notes: MC = Marginal Change. * = Significance at 10%, ** = Significance at 5%, *** = Significance at 1%. Standard errors calculated with delta method. Calculations are using an ordered probit model.

Table 15: Impact from the benefits of the program on moving to a more qualified occupation, compared to the household head. Male

Dependent Variable: Moving to a more qualified occupation (Male)								
	1		2		3		4	
	MC	Z	MC	Z	MC	Z	MC	Z
General effect								
Short term: Less than 3 years	0.02	0.29	0.02	0.24	0.05	0.44	0.01	0.09
Medium term: 3-6 years	0.03	0.09	0.02	0.06	0.06	0.10	0.03	0.04
Long term: more than 6 years	0.00	0.00	-0.01	-0.01	0.13	0.24	0.11	0.19
Differential effects by education level								
<i>Primary</i>								
Short term	-	-	-	-	-0.06	-0.10	-0.08	-0.12
Medium term	-	-	-	-	-0.05	-0.10	-0.04	-0.09
Long term	-	-	-	-	-0.04	-0.10	-0.04	-0.10
<i>Secondary</i>								
Short term	-	-	-	-	-0.06	-0.09	-0.09	-0.15
Medium term	-	-	-	-	-0.02	-0.03	-0.02	-0.03
Long term	-	-	-	-	-0.03	-0.06	-0.03	-0.06
<i>High School</i>								
Short term	-	-	-	-	-	-	-	-
Medium term	-	-	-	-	-	-	-	-
Long term	-	-	-	-	-	-	-	-
Differential effect for indigenous population								
Short term	-	-	-	-	0.23	0.38	0.21	0.32
Medium term	-	-	-	-	0.21	0.35	0.18	0.28
Long term	-	-	-	-	0.19	0.43	0.18	0.35
Control Variables								
Locality Entrance to the program	Yes		Yes		Yes		Yes	
Individual characteristics	Yes		No		Yes		Yes	
Household characteristics	No		Yes		Yes		Yes	
Locality characteristics	No		Yes		Yes		Yes	
Pre-program characteristic 1997	No		No		No		Yes	
N	2439		2439		2439		2439	
Prob > F	0		0		0		0	
R ²	0.016		0.023		0.027		0.033	

Notes: MC = Marginal Change. * = Significance at 10%, ** = Significance at 5%, *** = Significance at 1%. Standard errors calculated with delta method. Calculations are using an ordered probit model.

Table 16: Impact from the benefits of the program on moving to a more qualified occupation (females)

Dependent Variable: Moving to a more qualified occupation (Female)								
	1		2		3		4	
	MC	Z	MC	Z	MC	Z	MC	Z
General effect								
Short term: Less than 3 years	0.09	1.02	0.11	1.31	0.39	2.47 ***	0.34	2.01 **
Medium term: 3-6 years	0.07	0.13	0.06	0.06	-0.05	-0.02	-0.05	-0.05
Long term: more than 6 years	0.12	0.25	0.14	0.13	0.15	0.02	0.15	0.09
Differential effects by education level								
<i>Primary</i>								
Short term	-	-	-	-	-0.05	-0.01	-0.08	-0.06
Medium term	-	-	-	-	-0.16	-0.20	-0.15	-0.23
Long term	-	-	-	-	0.03	0.01	0.04	0.06
<i>Secondary</i>								
Short term	-	-	-	-	-	-	-	-
Medium term	-	-	-	-	-	-	-	-
Long term	-	-	-	-	-	-	-	-
<i>High School</i>								
Short term	-	-	-	-	-	-	-	-
Medium term	-	-	-	-	-	-	-	-
Long term	-	-	-	-	-	-	-	-
Differential effect for indigenous population								
Short term	-	-	-	-	-	-	-	-
Medium term	-	-	-	-	-	-	-	-
Long term	-	-	-	-	-	-	-	-
Control Variables								
Locality Entrance to the program	Yes		Yes		Yes		Yes	
Individual characteristics	Yes		No		Yes		Yes	
Household characteristics	No		Yes		Yes		Yes	
Locality characteristics	No		Yes		Yes		Yes	
Pre-program characteristic 1997	No		No		No		Yes	
N	1145		1145		1145		1145	
Prob > F	0		0		0		0	
R ²	0.06		0.07		0.075		0.082	

Notes: MC = Marginal Change. * = Significance at 10%, ** = Significance at 5%, *** = Significance at 1%. Standard errors calculated with delta method. Calculations are using an ordered probit model.

Annex 1

Table A.1 Mean Test for Sample ENCEL 2007

Variables	Beneficiaries Oportunidades			Non beneficiaries Oportunidades			Ha: diff != 0 Pr(T > t)
	Obs.	Media	Desv. Est.	Obs.	Media	Desv. Est.	
Years of schooling	13526	7.8578	2.5234	3094	7.2527	2.7742	0.0000
No instruction	13526	0.0221	0.1470	3094	0.0391	0.1939	0.0000
Primary	13526	0.2850	0.4514	3094	0.3930	0.4885	0.0000
Secondary	13526	0.5222	0.4995	3094	0.4396	0.4964	0.0000
High school	13526	0.1627	0.3691	3094	0.1189	0.3238	0.0000
Professional	13526	0.0080	0.0890	3094	0.0094	0.0964	0.4410
With school	13999	0.9662	0.1807	3413	0.9065	0.2911	0.0000
No school	13999	0.0338	0.1807	3413	0.0935	0.2911	0.0000
Illiterate	13999	0.0499	0.2177	3413	0.0797	0.2709	0.0000
Non illiterate	13999	0.9501	0.2177	3413	0.9203	0.2709	0.0000
Occupied	13999	0.3960	0.4891	3413	0.3876	0.4873	0.3684
Unemployed	13999	0.0157	0.1244	3413	0.0179	0.1325	0.3698
Working Force	13999	0.4117	0.4922	3413	0.4055	0.4911	0.5067
Inactive	13999	0.5883	0.4922	3413	0.5945	0.4911	0.5067
Scholarships transfers from social programs including Oportunidades	4615	477.89	314.45	343	464.16	289.02	0.4330
Monetary labor income in main job	3541	2528.34	2027.87	898	2695.19	3040.40	0.0492
Non monetary income from main job	154	1527.65	5329.40	39	1444.97	3472.53	0.9268
Monetary and non monetary labor income from main job	3639	2524.90	2288.61	919	2694.92	3110.15	0.0630
Monetary and non monetary labor income from secondary job	430	3374.07	3878.63	113	3914.74	5808.16	0.2401
Total labor income from main and secondary job	3772	2820.51	2763.37	946	3085.62	3860.96	0.0157
Total income (labor and transfers)	8027	1600.15	2246.74	1259	2444.96	3537.21	0.0000
Average hours per month, main job	5523	143.08	81.09	1319	151.46	82.51	0.0008
Average hours per month, secondary job	564	142.56	92.29	147	148.26	97.63	0.5103
Average hours worked per month, main and secondary jobs	5524	157.61	97.89	1319	167.98	100.90	0.0006
Average per hour monetary labor income, main job	3471	23.70	52.47	885	23.90	47.61	0.9185
Average per hour non monetary labor income, main job	150	14.44	32.09	37	12.32	21.24	0.7030
Average per hour monetary and non monetary labor income, main job	3567	23.67	52.32	905	23.88	47.26	0.9147
Average per hour monetary and non monetary labor income, secondary job	401	27.83	43.27	108	34.92	70.25	0.1931
Average per hour total income, main and secondary job	3705	23.23	51.59	934	24.03	47.97	0.6668

Note: we are only considering in this sample young in eligible for the program households, ENCEL 2007

Annex 2 Variables

Table A.2: Variables in the models

Group (vector)	Variables	Description
L	Locality by entrance of the program	<ul style="list-style-type: none"> ○ Less than 3 years ○ From 3 to 6 years ○ More than 6 years
Z	Individual characteristics	<ul style="list-style-type: none"> ○ Primary ○ Secondary ○ High school ○ College ○ Male ○ Indigenous
X	Household characteristics	<ul style="list-style-type: none"> ○ Members under 8 years old ○ Other member occupied ○ Other member occupied formal ○ Demographic dependence rate
	Pre-program household characteristics 1997	<ul style="list-style-type: none"> ○ Overcrowding index ○ Ground floor ○ Head with social security ○ Head without school ○ Bathroom without water ○ No gas stove
M	Locality characteristics	<ul style="list-style-type: none"> ○ Running water ○ Electricity ○ Sewage ○ Private telephone ○ Financial services ○ Kinder ○ Primary ○ Health clinic IMSS ○ Average wage males ○ Average hours males

Annex 3: Classifications for Occupations

(This classification is taken from González de la Rocha (2008), with the author's permission)

This classification is based on occupations that are regularly held and constructed from following about two hundred young workers that migrated from their localities in order to have a qualitative analysis of what they are doing nowadays.

Categories are based on qualifications, which is what Oportunidades program is aiming through its components. However, the category for each job is granted according to deprivation – access to social security or not -, for example: the one helping in a house for sells receives a lower category than a waitress.

This classification is intentionally fine for lower levels of skills, and also for medium levels, with the main intention to focus on the young leaving from poor rural agriculture households.

Categories:

1. The first is the traditional rural occupation, and less qualified, is that of agricultural laborer, harvester, and those related to agriculture, fertilizing, spraying, etc.
2. The second category is for builder helpers, non wage helpers at home, domestic employees, part time workers in little stores.
3. The third category is for those workers in local markets, kitchen helpers, gardeners, seamstress, tortillerias helpers, nannies, no qualifies workers, farmer's helpers.
4. The fourth category is composed by peasants in own lands and employees in informal stores but with a wage. It also includes those selling prepared food, little stores owners, cosmetic sellers, slaughters, and lumberjack.
5. The fifth level is for officials (builders, mechanics, and jewelers); more qualified workers, and employed in services and commerce but formal with benefits.
6. The sixth level is for master builders, plumbers, other jobs in charge of commerce and supervising.
7. The seventh category is for those commerce owners and technical occupations.
8. The eight level is for professionals.

It has to be noted that this categorization is based on a qualitative small sample analysis. The database from ENCEL 2007 contains all the Mexican Classification of Occupations with a broad disaggregation for occupations. Based on the precious categories we categorized each occupation in the database in the correspondent of the eight categories.